

# EUROPEAN PATENT OFFICE

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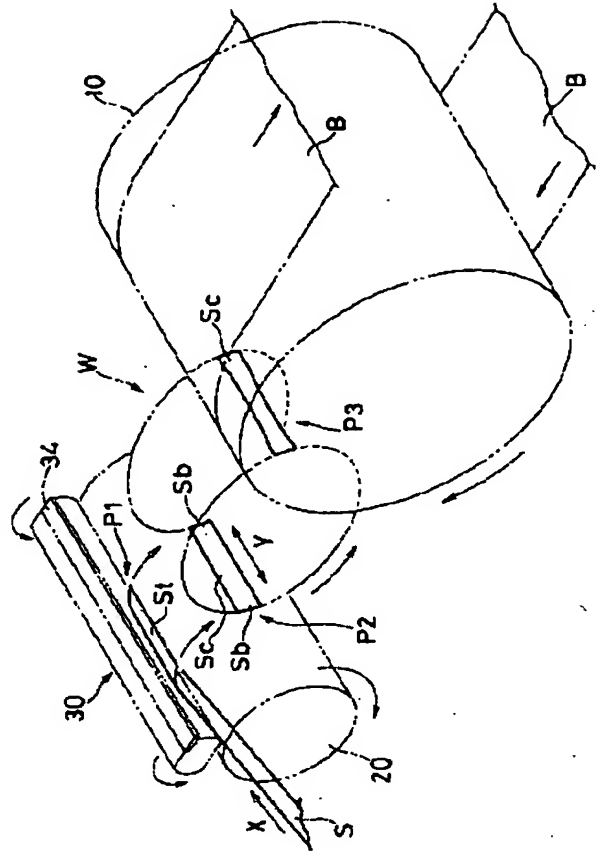
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TITLE : METHOD AND MECHANISM OF  
WIDENING ELASTIC MEMBER



ABSTRACT : PROBLEM TO BE SOLVED: To provide a method and mechanism of simplifying the structure of a manufacturing equipment by cutting the tip by feeding longitudinally a transversely extending elastic member that can be extended transversely, expanding a cut piece in the width direction while sucking both ends of the cut piece.

SOLUTION: A continuous web made up of a transversely extending elastic member S that can be extended transversely in the width direction Y is delivered in the longitudinal direction X to a cut position P1. At the cut position P1, a cut piece Sc is generated by cutting the tip St of the continuous web while sucking the tip St of the continuous web in the longitudinal direction X by the periphery of a suction roller 20. The width of the cut piece Sc is widened by stretching the cut piece Sc by separating both ends of the cut piece Sc while sucking both ends of the cut piece Sc in the width direction Y by suction members 61 and 62.

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## EUROPEAN PATENT APPLICATION

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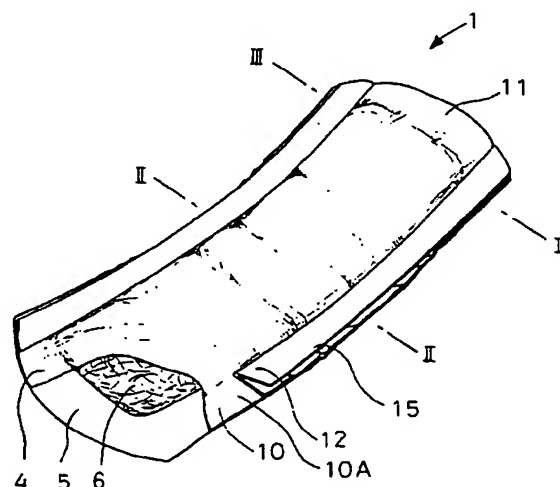
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(54) **Sanitary napkin.**

(57) A sanitary napkin (1) comprises a liquid-permeable topsheet (4), a liquid-impermeable backsheet (5) and an absorbent core (6) interposed between the topsheet (4) and the backsheet (5). The topsheet (4) and backsheet (5) extend outwardly from opposite side edges of the core (6) to form side flaps (10). A supplementary flap (12) comprising an elastic band-like sheet is attached in its stretched state to a top surface of each side flap (10) so as to fit tightly against a user's skin to prevent side leakage.

**FIG.1**



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The present invention relates to a sanitary napkin for treatment of menstruation.

Conventionally known sanitary napkins are provided with pockets or side flaps in laterally opposite side portions thereof, and further with elastic members disposed on the side flaps in an effort to prevent side leakage of body exudates. In Japanese Utility Model Laid-open No. Hei 2-26937 which is one known example, elastic strands are fixed longitudinally of side flaps to position in opposite sides of a core so that a bank function is provided to prevent leakage to outside.

A sanitary napkin is pressed against a local portion of a user in its use, generally assisted by tight shorts. This creates a problem in conventional napkins having elastic members on side flaps thereof in that those members are pushed deeply into a user's skin which can provide unexpected pain or discomfort to the user. The above known technique attempts to solve this problem by providing elasticity in a thickness direction of the strands. However, using this technique it is difficult to provide a complete solution because those strands project from a topsheet. In another known construction having side flaps which cover portions of a core, there is a problem that the mense absorbing rate is reduced in the covered portions.

Therefore, the present invention is directed toward solving the above problems by providing a supplementary flap comprising an elastic band-like sheet on a top surface of each side flap which extends from a side edge of a core for contacting a user's skin.

This invention provides the following means to solve the above problems.

A prerequisite of the present invention is a sanitary napkin which comprises a liquid-permeable topsheet, a liquid-impermeable backsheet, and an absorbent core interposed between said topsheet and said backsheet so that at least said backsheet extends outwardly from each side edge of said absorbent core to form a side flap.

Under such a prerequisite, the present invention is characterized in that a supplementary flap is disposed on a top surface of said side flap and extending longitudinally of said top surface and comprises an elastic band-like sheet, and that said elastic sheet in its stretched state is secured to said top surface of the side flap at an inner side edge and opposite end portions thereof and an outer side edge of said elastic sheet forms a free edge.

When the sanitary napkin as thus constructed is pressed against a local portion of a user, the supplementary flaps secured to the side flaps in their stretched state tightly fit against the user's skin so that side leakage of menses are prevented. The supplementary flaps are not likely to be pushed deeply into the user's skin. Because the supplementary flaps do not cover the core, it does not affect the absorbing

rate of the core.

The invention will be described in more detail with reference to the accompanying drawings, in which:-

Fig. 1 is a partly cut-away perspective view of a sanitary napkin.

Fig. 2 is a sectional view taken along a line II-II of Fig. 1.

Fig. 3 is a sectional view taken along a line III-III of Fig. 1.

Fig. 4 is a sectional view as similar to that of Fig. 2, illustrating another embodiment of a supplementary flap.

A sanitary napkin in accordance with the present invention will be explained below in detail with reference to the accompanying drawings.

Figs. 1, 2, and 3 are a partly cut-away perspective view, a sectional view taken along a line II-II of Fig. 1, and a sectional view taken along a line III-III of Fig. 1, respectively. A napkin 1 comprises a liquid-permeable topsheet 4, a liquid-impermeable backsheet 5 and an absorbent core 6 interposed between the topsheet 4 and the backsheet 5. The topsheet 4 and the backsheet 5 respectively extend outwardly from opposite side edges and opposite end edges of the core 6 and respective extensions thereof are joined to each other by securement lines 18 of hotmelt type of adhesives or by heat-bonding to form side flaps 10 and end flaps 11.

Each of the side flaps 10 has a supplementary flap 12 on its top surface 10A. The supplementary flap 12 comprises a band-like elastic sheet which is outwardly bi-folded to direct its top surface 12A inwardly so as to present a V-shape in cross section thereof which directs outwardly. The elastic sheet is stretched longitudinally of the napkin 1 and a bottom (proximal) surface 12B of a lower sheet portion as defined by the bi-folding of the elastic sheet is in its stretched state adhered to the side flap 10 by securement lines 13 of hotmelt type of adhesives (See Fig. 3). A top surface 12A of the sheet is secured onto itself by securement lines 14 in opposite end portions of the sheet. Accordingly, an outer side (distal) edge 15 of a longitudinal central portion of the sheet is rendered free to be elastically stretchable and contractable. When the napkin 1 is inwardly bent, e.g. when it is pressed against a local portion of a user, the outer side edge 15 of the supplementary flap 12 elastically contracts and is spaced away from the top surface 10A of the flap 10 to readily come into contact with the user's skin. The configurations of the outer edge as spaced away from the top surface are illustrated in Figs. 1 and 2.

Fig. 4 is a sectional view similar to that of Fig. 2, illustrating another embodiment of the supplementary flap. In this embodiment, a band-like sheet which is narrower than the band-like sheet of Fig. 2 constitutes a supplementary flap 12 whose inner side edge portion 16 is joined to a top surface 10A by a secure-

ment line 17. In this embodiment, an edge of the inner side edge portion 16 is adapted to come into contact with a user's skin, which may provide less comfort to users during use than the embodiment of Fig. 2 does.

The supplementary flap 12 may comprise an elastic plastic sheet, a non-woven fabric, or a rubber sheet. Those sheet materials are liquid-resistant, preferably liquid-impermeable, more preferably air-permeable and liquid-impermeable. Those sheet materials preferably have friction coefficients higher than that of the topsheet 4 to help prevent a top surface of the napkin 1 from slipping on the user's skin. The topsheet 4, the backsheet 5 and the absorbent core 6 may comprise conventionally used materials for sanitary napkins, respectively. Heat-bonding technologies as well as glues and adhesives such as hotmelt type of adhesives can be employed in securing any of those sheets.

The sanitary napkin in accordance with this invention has an elastic supplementary flap comprising a band-like sheet and disposed on a side flap so that when worn by a user it provides a comfortable feeling to the user during use and is not likely to be pressed deeply into the user's skin. Since the supplementary flap does not cover the absorbent core, it does not affect the absorbing rate of the absorbent core.

shape in cross section thereof which directs outwardly.

## Claims

1. A sanitary napkin comprising a liquid-permeable topsheet, a liquid-impermeable backsheet, and an absorbent core interposed between said topsheet and said backsheet so that at least said backsheet extends outwardly from each side edge of said absorbent core to form a side flap, characterized in that a supplementary flap is disposed on a top surface of said side flap and extending longitudinally of said top surface and comprises an elastic band-like sheet, and in that said elastic sheet in its stretched state is secured to said top surface of the side flap at an inner side edge and opposite end portions thereof and an outer side edge of said elastic sheet forms a free edge.
2. A sanitary napkin according to Claim 1, wherein said elastic sheet comprising said supplementary flap is outwardly bi-folded to direct its top surface inwardly, a bottom surface of a lower sheet portion as defined by the bi-folding of said elastic sheet being adhered to said side flap and a top surface of said elastic sheet being secured onto said elastic sheet itself in its opposite end portions.
3. A sanitary napkin according to Claim 2, wherein said bi-folding of said elastic sheet defines a V-

FIG.1

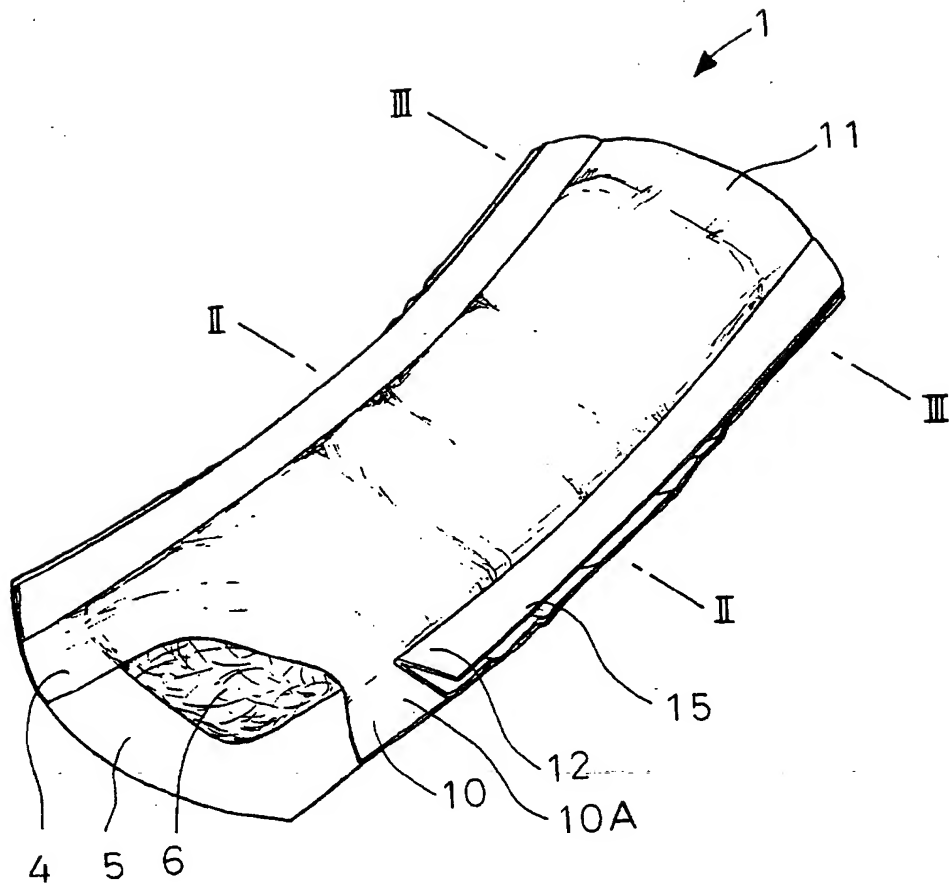


FIG.2

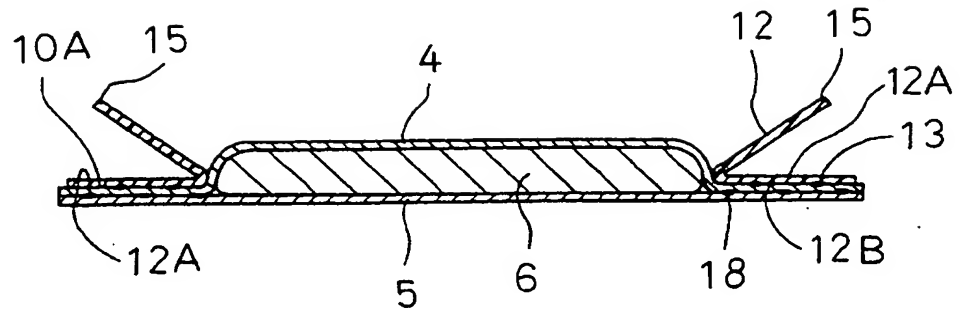


FIG.3

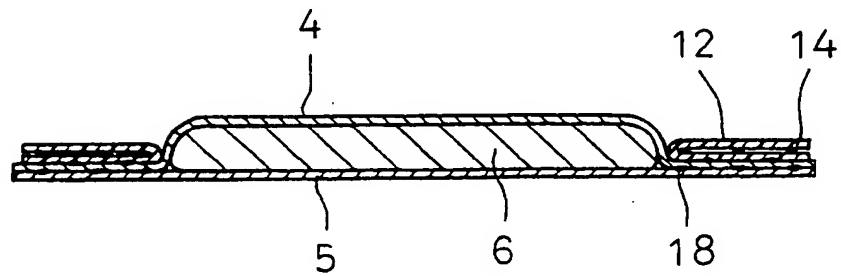
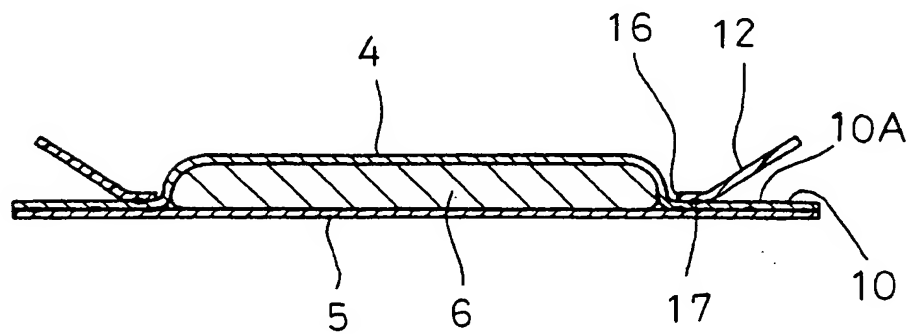


FIG.4





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# EUROPEAN SEARCH REPORT

Application Number  
EP 94 30 5173

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO-A-93 12747 (THE PROCTER & GAMBLE COMPANY) * page 23, line 7 - line 30; figure 6 *	1-3	A61F13/15
P,X	EP-A-0 581 258 (SYTIC CORPORATION) * figures 2-5 *	1-3	
X	WO-A-93 10733 (PROCTER & GAMBLE FAR EAST, INC.) * figure 4B *	1-3	
P,X	WO-A-94 02095 (THE PROCTER & GAMBLE COMPANY) * the whole document *	1-3	
P,X	WO-A-93 19711 (THE PROCTER & GAMBLE COMPANY) * figures 2-4,7 *	1	
A	WO-A-93 12745 (MÖLNLYCKE AB) * figures *	1-3	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	WO-A-92 07536 (MÖLNLYCKE AB) * figures *	1-3	A61F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 December 1994	Examiner Argentini, A
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

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